

Amendments to the Drawings

The attached sheet of drawing includes amendment to FIG. 7 by replacing the original element numbers 302 (the source media), 304 (pick-up head), 306 (processor), and 308 (SDRAM) with new numbers 702, 704, 706, and 708, respectively. This sheet, which includes FIG. 7, replaces the original sheet.

Attachment: Replacement Sheet

REMARKS/ARGUMENTS

Claims 1-20 remain pending. Claims 5-6, 12 and 20 have been currently amended. Portions of the specification are amended to correct some minor errors. Applicant respectfully requests reconsideration in light of the following remarks.

Specification Objections

The specification is objected to because some element numbers are labeled incorrectly. Accordingly, the element numbers of the source media, pick-up head, processor, and SDRAM are replaced with new numbers 702, 704, 706, and 708, respectively, in the specification and the drawing (FIG. 7). Further, the element number of the “calculating module” (page 9, line 4) has been corrected to 3006.

Rejection of Claims 12-16 under 35 U.S.C. 101

Claims 12-16 are rejected under 35 U.S.C. 101 as being directed to non-statutory subject matter because the statements are functional descriptive material that is not structurally or functionally interrelated to the claimed apparatus. Accordingly, Applicant amends Claim 12 to explicitly and newly add “means for retrieving a block of data from a disc,” which is supported by the originally filed specification/drawings (for example, FIG. 7 and related description), and thus no new matter is added. It is respectfully believed that such limitation is structurally and functionally related to the claimed apparatus, and Claims 12-16 are therefore directed to statutory subject matter. Moreover, Applicant respectfully submits that the claimed “generating means,” “dividing means,” and “calculating means” are not necessarily directed to software as asserted by Examiner. The disclosure of the present application does not limit those means to software, and it is well known in the art that other technical ways, such as hardware, could be utilized to embody those means.

Rejection of Claims 5-16 and 20 under 35 U.S.C. 112(2)

Claims 5-16 and 20 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite.

As per Claims 5 and 20, the limitation “the optical disc” is now replaced with “an optical disc” as suggested by Examiner.

As per Claim 6, the limitation “the physical address” is now replaced with “a physical address” as suggested by Examiner.

As per Claim 12, Applicant amends the preamble to “apparatus for operating a disc player with a memory,” and adds “means for retrieving a block of data from a disc.” It is believed that the amended Claim 12 is complete, and is sufficient to support the preamble.

Rejection of Claims 1-20 under 35 U.S.C. 103(a)

Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chowdhary (US Patent 6,675,278) in view of Ryan (US Patent 5,748,551). Applicant respectfully traverses the rejection for the following reasons.

Chowdhary

Chowdhary is directed to a method and apparatus for managing memory. The purpose of Chowdhary is to make the data pages “contiguous” so that free space/holes is small (column 1, lines 16-21). For example, from FIG. 3 to FIG. 4, the free space (data pages 3 and 4) in the physical address space (FIG. 3) is given priority to be filled with data (FIG. 4). For another example, from FIG. 4 to FIG. 5, the free space (data page 7) in the physical address space (FIG. 4) is given priority to be filled with data (FIG. 5).

Ryan

Ryan discloses an SDRAM memory device, in which, as shown in Fig. 7, the memory array is divided into banks (220). Commands and addresses applied to the memory device affect all internal banks identically and in the same manner, but on a time-staggered basis, as shown in Fig. 8. In other words, the memory device appears

externally to be a single bank device (abstract and column 6, lines 13-22).

The Claimed Invention

The claimed invention is directed to interleaved mapping method and apparatus for accessing a memory, in which a block index is firstly generated for a block of data (for example, FIG. 5), followed by mapping the block index to a physical address, in a manner such that logical adjacent blocks are mapped to/stored at “different banks.”

Accordingly, while one bank is accessed, the other one bank is pre-charged, thereby wasting no time in pre-charge operation.

Argument

The withdrawal of the rejection is respectfully requested on three grounds.

Firstly, as expounded above, the purpose of Chowdhary is to make the data pages “contiguous” so that free space/holes is small. To the contrary, in the claimed invention, the logical adjacent blocks of data are “stored physically **at different banks** of the memory,” indicating that the logical adjacent blocks of data are stored physically at non-contiguous banks. Applicant respectfully submits that Chowdhary teaches away as a person of ordinary skill, upon reading the reference Chowdhary, would be led in a direction divergent from the path that was taken by the applicant. MPEP 2141.02 recites:

A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.

Secondly, in addition to the teaching away as discussed above, Applicant respectfully submits that a person skilled in the art would not have modified Chowdhary in arriving at the claimed invention, because such modification would defeat Chowdhary’s purpose. Chowdhary, therefore, can not render the claimed invention obvious as explained in MPEP 2143.01:

If proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)

If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959)

Finally, Applicant respectfully submits that Ryan does not make up deficiency of Chowdhary, and Ryan lacks the claimed limitation “any logical adjacent block of data be stored physically at different banks of the memory” in independent Claims 1, 6, 12 and 17. Even Ryan discloses banks that are operated on a time-staggered basis, these banks, however, collectively behave as a single bank device. Specifically, as a command/address is applied to the memory device, it affects ALL internal banks identically and in the same manner (abstract and column 6, lines 13-22). In other words, the Ryan’s banks cannot be accessed individually, not to mention being “stored physically at different banks” as claimed.

With respect to dependent claims not specifically mentioned, it is submitted that these claims are patentable not only by virtue of their dependency on their respective base claims, but also for the totality of features recited therein.

CONCLUSION

In light of the above amendments and remarks, Applicant respectfully submits that Claims 1-20 as currently presented are in condition for allowance. Accordingly, reconsideration is respectfully requested.

Respectfully submitted,
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